

Suggestions for Public Water Suppliers Regarding Assessing the Results of Weekly Lake-Wide Cyanobacteria Monitoring Program

What are Blue Green Algae/Cyanobacteria?

Blue-green algae, (cyanobacteria) are a common and natural component of the microscopic plants (plankton) in Lake Champlain. Some kinds of blue-green algae may produce natural toxins under certain conditions. If this occurs, when these algae die and break down, toxins can be released into the water.

1. Use the weekly information from the Vermont DEC lake-wide monitoring program

- The presence of cyanobacteria at the alert level in the same subbasin as your intake indicates that cyanobacteria may be present in waters in the vicinity of your intake.
- The actual concentration of cyanobacteria in your subbasin will be highly variable and influenced by factors such as wind direction and strength. The potential regarding your intake will be based upon the depth of your intake, and its distance from shore. High shoreline concentrations of cyanobacteria do not mean that you will have cyanobacteria in your untreated raw lake water. Blooms within your subbasin that have been identified as reaching the alert level by the lake-wide monitoring program indicate that sampling of the raw intake water and the treated finished water should be started.
- Know the history of your subbasin.
- Review the results of the lake-wide monitoring program each week.
- Be prepared to collect and submit samples whenever alert levels are reached in your specific subbasin.

2. Know your Raw Water Characteristics and Equipment

- Intakes in shallow water may be more at risk than deeper intakes, especially in areas prone to high cyanobacterial densities.
 - Windy conditions prevent algae from gathering at the surface and can mix water from the surface all the way to the bottom in shallow locations. This may bring cyanobacteria closer to your intake.

Windy conditions can also concentrate cyanobacteria along the downwind shoreline.

- Algae populations in a lake follow a predictable pattern, from diatoms in winter and early spring to green algae and cyanobacteria in summer. You may already collect data about your raw water that can tell you when algae densities are increasing:
 - pH and oxygen – when algae are abundant, there is a lot of photosynthesis going on. This often leads to higher oxygen concentrations and increases in pH, especially during sunny weather
 - Suspended solids – algae are captured by these measurements. For example, you may find that there is an annual increase in solids or turbidity each spring that reflects the spring diatom bloom in your area. A similar increase in August or September, coinciding with monitoring data confirming that cyanobacteria are present in your area, may mean that cyanobacteria are reaching your intake.
 - Color changes and visible particulates - at shallower intakes, low concentrations of cyanobacteria colonies may resemble fine hairs or specks in the water. High concentrations of cyanobacteria or blooms impart a greenish cast to the water and may collect at the surface. For photo example of blooms--go to the Vermont Department of Health website:
http://healthvermont.gov/enviro/bg_algae/photos.aspx

For more information:

Vermont Department of Health:

http://healthvermont.gov/enviro/bg_algae/bgalgae.aspx

Vermont Drinking Water and Groundwater Protection Division:

<http://drinkingwater.vt.gov/pcswsqbga.htm>